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# Foreign AGRICULTURE

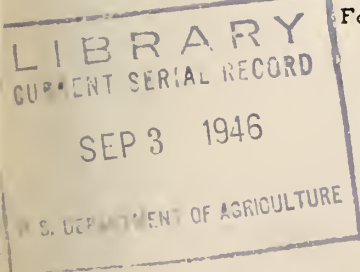
A REVIEW OF FOREIGN FARM POLICY, PRODUCTION, AND TRADE

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# Cuban Agricultural Policy

by PAUL G. MINNEMAN\*

Cuba, as is true of many other countries, has no well-defined official statement of its agricultural policy. In actual practice the chief goals may be summarized as (a) stability, at the highest possible level, for the dominant export products, sugar and tobacco, which account for over 90 percent of the country's exports; (b) diversification through protection of other products to increase production and reduce food imports; and (c) to raise wages, increase employment, and improve the standard of living.

## The Problem

Generally speaking, Cuba has plenty of fertile land, plenty of labor, and plenty of capital with which to expand agricultural production but lacks economic stability and confidence to induce new production.<sup>1</sup> Nearly 60 percent of the country's cultivated land is devoted to sugarcane, and sugar production directly employs about 40 percent of all labor. About 90 to 95 percent of the sugar produced is usually exported, and this accounts for about 80 percent of Cuba's total exports of all products. Sugar, therefore, is the dominant element in Cuba's economy. Tobacco, the second most important crop, usually accounts for only 10 to 12 percent of the country's exports.

The rest of the country's agriculture consists of a wide variety of food crops and livestock products for domestic consumption and some fresh fruit, winter vegetables, and henequen fiber for export. The principal agricultural imports are rice, flour, lard, vegetable oils, soap tallow, beans, potatoes, onions, cured pork, raw cotton, and deciduous fruits.

## STABILITY

Wide variations in sugar income (variations in price and in quantity that can be exported) have caused erratic variations in the level of prosperity from the "dance of the millions" or "fat cow" days in 1919 and 1920 to extreme depressions in 1932 and 1933. The value of Cuba's sugar crop dropped

from the exceptionally high peak of 1,005 million dollars in 1920 to a low of 46 million yearly in 1932 and 1933, a decline to less than 5 percent of the peak. At the same time the total value of Cuba's foreign trade dropped from 1,351 million dollars in 1920 to 126 million in 1933, a decline to 9 percent. This automatically affected all phases of the country's economy. Stability for the sugar industry, therefore, is the prime consideration in Cuba's agricultural policy.

## DIVERSIFICATION

Cuba is ideally fitted for the production of sugarcane. Cane grows for many years without replanting, with little cultivation or other care, and requires little labor, except for harvest during the winter. It follows, therefore, that farmers who can grow cane generally neglect other food crops. This not only results in heavy importations of food but leaves long periods of relative unemployment during the "dead season" when sugar mills are not working. The "zafra" or sugar-harvesting season usually lasts little more than 3 months during the winter.

It is axiomatic, therefore, that Cuban farmers prefer to grow sugarcane and to buy most of their food in town. Whenever the sugar price is high, this tendency is accentuated; food production tends to suffer, and the much-needed diversification is retarded.

## WAGES AND EMPLOYMENT

Prior to 1940, the wages of agricultural laborers averaged less than 80 cents a day. The new Constitution of 1940 established a minimum wage of 80 cents, and since then various increases have raised the minimum in rural areas to \$1.74 and in urban areas<sup>2</sup> to \$2.40. The fact that a minimum was specified in the new Constitution and that the respective increases since then have been by Government decree indicates clearly that raising wages is a definite part of the Government policy. Increases in prices and living costs since 1940 have provided a strong argument for wage increases. Laborers employed in harvesting cane receive wages based on the quantity of cane cut and the

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<sup>1</sup> For a detailed basic statement concerning Cuba's agriculture, see MINNEMAN, P. G. *THE AGRICULTURE OF CUBA*. U. S. Dept. Agr. Foreign Agr. Bul. No. 2. 144 pp., illus. Washington. 1942.

<sup>2</sup> Minimum wages for sugar work other than harvesting are \$1.92 per 8-hour day.



price of sugar, but the fact that the harvesting season lasts only about 3 months limits the possibility of gainful employment for this large segment of population, and makes it highly desirable that employment be found during the remainder of the year.

### BASIC CONSIDERATIONS

In order to carry out a program of stability and diversification and to raise the standard of living, it is basic that improved agricultural methods be adopted. The logical way to do this is through research, education, extension, and demonstration, supported by improved marketing practices.

Little practical value can result from better farm and marketing standards unless transportation is improved. There are very few all-weather roads in Cuba, with the exception of the Central Highway which runs through the center of the island. Actual farm roads are almost entirely lacking. The only outlet from many important agricultural areas is over private sugar-mill field railways or by oxcart or pack train.

In spite of the ease with which many kinds of vegetables, fruit, and dairy and poultry products can be produced, a large part of the Cuban population suffers from malnutrition. With increased purchasing power during the war, the demand for many staple items has increased sharply, indicating that there is a chronic underconsumption. This is further evidence of the need for diversified production and education in nutrition and food habits. Labor federations and the Government interpret this underconsumption as an argument for higher wages to increase purchasing power.

The inherent characteristics of the sugar and cattle industries cause them to be large units with vast centralized landholdings. Sugar companies own or control nearly half the land in farms, in addition to the large holdings of cattle ranches. Less than one-third of the cultivated land is operated by the owners. Few small farmers and laborers accumulate enough money to buy land. Increased operator ownership of small farms is obviously desirable for the development of an economically and politically stable, prosperous rural population.

Finally, Cuba as yet lacks accurate production statistics, and funds available to the Ministry of Agriculture are entirely inadequate to carry out effective and comprehensive statistical and research programs. Data are available on the pro-

duction of sugar, tobacco, and coffee, but they are neither complete nor current in the case of other products. A comprehensive agricultural census, however, is planned for 1946. Funds available to the Ministry of Agriculture amount to only about 2 percent of the national budget.

### Programs Adopted

The long-time (peacetime) programs avowedly adopted are those already mentioned with emphasis on stability for sugar and tobacco, protection for other products to encourage diversified production, and higher wages to improve the standard of living. Another important factor in Cuban policy (incident to diversification and increasing employment) is, wherever possible, to process Cuban raw materials in Cuba not only for domestic consumption but also for export. Examples of this are canning of fruit and vegetables, refining sugar, distilling molasses into alcohol, and converting sugar into candy and henequen fiber into rope.

The other more basic factors of education; extension; improvement of production methods, farm roads, farm ownership; irrigation; and reforestation are also included in the declared policy of each administration, but relatively little has been accomplished along these lines, probably because of the difficulty in showing quick results in these basic programs.

Emergency war measures were devised in efforts to control prices and the distribution of imported products in short supply; these involved various decrees, including price fixing, stock control, export embargoes, and subsidies. The legal bases for most of Cuba's policy measures are the new Constitution in 1940, acts of Congress, and Presidential decrees. The new Constitution declares certain basic principles affecting agriculture. Article 271 states—

... the development of national agriculture and industry shall be a primordial function of the nation which shall seek the diversification thereof as sources of public wealth and collective benefit.

Article 90 states that large landholdings are proscribed and that the acquisition and possession of land by foreigners and companies shall be restricted by law. Article 91 states that—

The head of the family who inhabits, cultivates and directly exploits the rural property owned by him, provided its value is not more than \$2,000, can irrevocably

declare it to be family property . . . and shall be tax free and cannot be attached . . .<sup>3</sup>

Article 75 states that cooperative enterprise will be fostered by law, and Article 275 provides that the production of administration sugarcane (by the mills themselves) shall be regulated and reduced to the minimum.

The Tariff Act of 1927, with subsequent modifications, provided increased protection to most products produced in Cuba and is probably the oldest basic legislation now affecting Cuba's agricultural policy. The Sugar Coordination Law of 1937 is the most important single piece of legislation affecting sugar. Most of the other measures during recent years have been Presidential decrees rather than acts of Congress.

Most of Cuba's policy programs are applicable to individual specific commodities, and therefore the legislation, methods, funds, organization, and success of the various programs can best be studied by examining the individual commodities.

## SUGAR

Cuba's fortunes rise and fall with the world sugar situation. Cuba's basic sugar policy is to obtain an export market for the largest possible quantity at the best price and then to adjust and allocate domestic production accordingly. Domestic measures with respect to sugar, therefore, are designed to provide stability within the framework of the world market. The Government does not subsidize production or exports, but it regulates the quantity to be produced and the distribution of the returns among various sectors of the industry.

The machinery for controlling domestic production in years of surpluses and providing a uniform basis of paying for cane and of harvesting wage rates is the Sugar Coordination Law enacted in 1937. With minor changes and administrative regulations, it continues in effect. The Government, through the Institute, each year fixes total production quotas on the basis of estimates of the quantity of sugar that may be marketed. Production quotas are then assigned to each mill and to each *colono* (cane grower) in the island. Individual quotas are established on a historical basis and administered through the Sugar Stabilization

Institute, a semi-Government organization supported by a tax on each bag of sugar.<sup>4</sup> Although individual growers may plant all the cane they wish, the quantity each may deliver to the mill is limited by his production quota. The quota system has been continued nominally throughout the period of war-expanded production, but the quotas have been large enough to permit all available cane to be ground.

The Government also determines twice a month the official average "promedio" price of raw sugar at the various Cuban ports. This promedio is used as a basis for paying harvesting wages and for paying colonos for their cane; both of these vary directly with the promedio price of sugar.

There is also well-defined and long-standing movement against administration cane—that produced by the mills themselves with hired labor. Administration cane is usually produced in large units, whereas the Government favors production by smaller cane growers. Article 275 of the Constitution states that—

The planting and grinding of administration cane shall be regulated by law, being reduced to the minimum limit imposed by the social-economic need for maintaining the sugar industry on a basis of separation of the two large factors which occur in its development: industrialists or sugar producers, and farmers or planters who produce the cane.

Although the basic principles of the Coordination Law continue to govern, minor variations have been decreed from time to time. The Government, however, has tended to favor cane growers and laborers as against mill owners. The Coordination Law provides that wages for harvesting cane shall vary automatically with the price of sugar, but the Government has decreed several additional increases in harvesting wages over and above those resulting from the increased price of sugar. These wage increases constitute a deviation from the Coordination Law. Money from the sales of blackstrap molasses, a byproduct, formerly accrued solely to mill owners, but the Government in 1945 decreed that the cane growers must be given a share in these receipts.

The Government has also taken measures to force certain sugar mills that have been idle for

<sup>3</sup> This provision was subsequently enacted as Law No. 18 of 1943. See attachments to U. S. Embassy's dispatch No. 3437, LAW EXEMPTING SMALL FAMILY HOMESTEADS FROM TAXES AND FROM SEIZURE FOR DEBTS. 2 pp. Habana. June 11, 1943. [Hectographed.]

<sup>4</sup> For further details concerning the organization, purpose, and operation of the Sugar Institute and other sugar organizations in Cuba, see MINNEMAN, PAUL G. ORGANIZATIONS IN THE CUBAN SUGAR INDUSTRY. U. S. Cons. Rpt. No. 66. 8 pp. Habana. February 12, 1945. [Hectographed.]



10 or more years to resume grinding for the avowed purpose of spreading to a greater number of regions the local prosperity inherent in the operation of a mill. All the available cane at the idle mills, however, had been ground regularly at neighboring mills. The production of some mills, therefore, was reduced when the number of mills was increased; thus, certain economies that formerly resulted from operating only the larger and more efficient units were disregarded.

In the international field Cuba has tried a variety of measures. The report of the Foreign Policy Association<sup>5</sup> states:

Cuba has experimented with restricted production, delayed production, and market quotas; it has had pools and cartels, single sellers and a near valorization scheme; it has acted unilaterally and has sought international cooperation; and it has experienced spasms of complete *laissez faire*. Each . . . effort has seemed to lead the sugar industry . . . toward its doom.

The Verdeja Act, the Sugar Defense Act, Sugar Sales Agency, Chadbourne Plan, London Agreement, and the United States quota on imports of Cuban sugar are described by the writer in his bulletin on Cuban agriculture.<sup>6</sup> The International Sugar Agreement of London in 1937, in which Cuba is a member, seeks to stabilize world production and international trade of the major exporting and importing countries. The effect of this Agreement was promptly overshadowed by the war, but the system of quotas for suppliers to the world "free market" promised additional stability in exports to countries other than the United States. Cuba had been assured a limited market in the United States by our sugar-quota system of the 1937 Sugar Act. Sugar within the United States quota obtains a higher price than generally prevails on the world market. Although the United States quotas have been inoperative during and since the war, Cuba has been able to increase greatly its shipments to the United States while sugar was urgently needed and supplies from other areas were reduced.

During the war, beginning with the 1942 crop (as during World War I), Cuba sold its entire sugar crops to agencies of the United States Government acting as buying agents for the United Nations. Cuba reserved only relatively small quantities for domestic consumption and for sale

to other American Republics. The Sugar Institute acts as the sole selling agent for Cuban sugar in these global crop sales. The terms of the sale agreements were negotiated by Government-appointed commissions, including members from the Mill Owners and Cane Growers Associations. In agreeing to a specified price, Cuba also received in 1944 and 1945 guaranties of specific allocations of United States rice, wheat flour, and lard at fixed prices. Contracts for the sale of blackstrap molasses and industrial alcohol were also concluded along with the sale of raw sugar.

In early 1946 the Cuban Government also entered into agreements with some 10 other American Republics for the sale of limited quantities of sugar in return for various concessions from the other countries, in some cases involving tariff concessions on Cuban tobacco and in other cases involving the sale to Cuba of needed food products and fertilizer. These sugar sales, however, were made at prices nearly double the price to the Commodity Credit Corporation. The Cuban Government is taking over the money accruing from this price increase. There were various objectives in making these sales: Cuba supplied needed sugar to the various countries, which may continue to be future markets; it obtained concessions from them; it obtained some 20 million dollars of additional revenue; and tried to establish that the world market price for sugar is actually much higher than that being paid by the CCC. Those pressing for high sugar prices seem to have given little thought to the stimulation which such high prices will have in increasing competitive sugar production in the other countries.

## TOBACCO

Although Cuba is world-renowned for its fine Habana cigar tobacco, only about half of its total production is exported. About three-fourths of that retained in Cuba is used in making cigarettes.

The general policy of the Government has been to (a) prevent importation of competitive leaf by means of a prohibitive duty of more than \$4 a pound; (b) prohibit the exportation of Cuban tobacco seed or the importation of foreign seed; (c) encourage improved quality of Cuban leaf through a special tobacco-experiment station, which distributes free improved seed throughout the island, and prohibit the harvesting of damaged bottom leaves; and (d) encourage exports of cigars and leaf through advertising, propaganda,

<sup>5</sup> FOREIGN POLICY ASSOCIATION, COMMISSION ON CUBAN AFFAIRS. PROBLEMS OF THE NEW CUBA. 523 pp., illus. New York. 1935.

<sup>6</sup> See pp. 40-46 of reference cited in footnote 1.

and international treaties. Until now Cuba has prohibited the use of machines for making cigars. In 1942 the Government established minimum prices to growers for leaf tobacco. In early 1946 it entered into agreements with two American countries for duty-free entry of certain specified quantities of Cuban cigars and tobacco in return for the supplying by Cuba of sugar vitally needed in those countries.

A proposal has been made recently that Cuba require such countries to purchase a specified quantity of tobacco with purchases of Cuban sugar. A plan is also generally approved for the introduction of machines for making cigars in order to lower prices and permit Cuba to compete more effectively in the export market. This plan would involve retirement subsidies to cigar makers who might be forced out of employment through the use of machines.

Generally the Government has not exerted a great influence over the tobacco industry, except through the high import duty. This prohibits the introduction of competitive cigarette leaf and discourages the importation of United States cigarettes, which are becoming increasingly popular in Cuba.

## COFFEE

In the preceding century Cuba was a relatively important exporter of coffee, but, with the expansion of production in South America, Cuba's production declined to such an extent that coffee imports were necessary. In order to revive domestic production to a self-sufficient or even a surplus basis, Cuba raised import duties and in 1934 created the Coffee Institute that made exportation of surplus production compulsory. From 10 to 30 percent of each crop from 1935 to 1945 had to be exported by Government order at whatever price could be obtained in the world market, even though Cuban prices were materially higher.

In 1937 the program was expanded to provide minimum wages for coffee pickers and minimum prices to growers and roasters at levels 50 to 100 percent above the world markets. In the middle of 1945 the drought-decreased production and prosperity-increased consumption made it necessary to discontinue further exports and, in fact, to import substantial quantities of coffee for the first time in many years. Imported coffee, however, was sold by the Government at the materially higher Cuban prices, and the Government avow-

edly will use these profits for road construction and other improvements in coffee-growing areas.

In essence, the Government program to sustain domestic production involves maintaining relatively high wages and abnormally high domestic coffee prices and the dumping of any surplus production at the materially lower world price level.

## OTHER PRODUCTS

There are no specific individual programs for other crops and livestock products produced principally for domestic consumption. Government support for these products involves relatively high import duties, together with various minor measures of assistance, such as providing seed and equipment and, in some recent cases, specifying minimum prices. During the war and following the hurricane of 1944, minimum prices were established to increase production for a number of local products, whereas in other cases maximum prices were imposed to control inflation in living costs.

With increasing attention being given to the production of sugarcane at the expense of other domestic food production, the Government in 1942 passed Decree-Law No. 9<sup>7</sup> making it obligatory that all farms having more than 5 *caballerías* (about 165.8 acres) of land produce at least 120 cordels (about 12 acres) of other food crops. Sugarcane growers must plant about 5 acres of other crops for each 100,000 arrobas (about 1,265 short tons) of cane. Cattlemen are permitted to substitute 30 hogs for each 10 acres of food crops. Although the Government has required periodic reports from the sugar mills as to compliance with this decree, it is doubtful if production was materially increased thereby. In some cases the necessary area of land was prepared, and even planted, but was subsequently abandoned. The Ministry of Agriculture reported that in 1945 a total of 208,000 acres of miscellaneous food crops were produced in compliance with this decree.

In 1943, and again in 1945 and 1946, the Ministry of Agriculture procured a limited quantity of agricultural equipment, such as track-type tractors, plows, drills, planters, combines, threshers, and well drillers. Much of this is being operated directly by the Ministry on a customs basis to prepare land for small farmers at a nominal charge in order to increase production. The Ministry is endeavor-

<sup>7</sup> See BRIGGS, ELLIS O. CUBAN GOVERNMENT PROVIDES FOR OBLIGATORY CULTIVATION OF RICE, CORN, BEANS, PEANUTS, AND OTHER FOOD CROPS EXCEPT SUGARCANE. U. S. Cons. Rept. No. 3460, 3 pp. Habana. February 12, 1942.



ing to expand this program, but it is still too early to determine the degree of success. Some \$1,500,000 has already been spent for equipment.

The Ministry of Agriculture each year distributes a limited quantity of seed in an effort to increase production. This includes corn, rice, peanut, and vegetable seed.

In 1937 a law was passed providing for the distribution of Government-owned land to farm families. Under this program, from 1937 through 1945, a total of 75,000 acres was distributed to 1,815 families who are to operate it as small farms.

## Principal Effects

The protection since 1927 to Cuba's domestic production through the increased import duties definitely has resulted in increased diversification of crops and greater domestic production. This result has been most significant in the case of Cuba's livestock industry. Importations of beef, evaporated milk, butter, cheese, and eggs have practically ceased since 1927, and domestic production was increased to such an extent that all except eggs were on an export basis just prior to the war.<sup>8</sup> Importations of pork, potatoes, corn, beans, and coffee have also declined.

It is readily apparent, therefore, that Cuba's diversification program has already made much progress, although this has resulted principally from the high tariff.

Cuba's sugar program, involving international agreements and domestic adjustment and regulation, also appears to have been reasonably successful, although the wartime prosperity tends to overshadow any long-time effects. The quota machinery and the formula for distributing income between various sectors of the industry have provided much-needed stability. Recently, however, the Government has tended to disregard the specified formula and to enact various measures tending to favor certain sectors of the industry. During recent years of world scarcity, the quotas have not restricted individual production, and many farmers have planted cane without quotas. As soon as it again becomes necessary to restrict production, adjustments will have to be made in the distribution of individual quotas.

Cuba's coffee valorization program has been successful in obtaining domestic production sufficient to meet local requirements and usually to provide

a small surplus for export. This has been accomplished, however, only through raising the Cuban consumer's cost of coffee to about double the world market level. It has probably cost the Cuban consumer from 6 to 10 million dollars per year in order to sustain the domestic industry and provide employment for coffee growers.

In the tobacco industry, Cuba's policy of prohibiting the use of cigar-making machinery has resulted in a relatively high price of cigars, which certainly has restricted the export possibilities and probably has also restricted domestic consumption. Before the war the average export price of Cuban cigars was 10 to 12 cents each, compared with an average retail price of less than 5 cents each for United States machine-made, tax-paid cigars in the United States.

Cuba's policy of increasing wages has been effective in increasing consumer purchasing power and consumption, but it has also greatly increased the cost of production and reduced Cuba's possibility of effectively competing on the postwar market.

The farm income has obviously been increased as a result of the increased agricultural production of items other than sugar, which occurred as a result of the increase in tariff after 1927. By 1939-41 at least 20 million dollars worth of agricultural imports had been eliminated as compared with the 1924-26 average preceding the 1927 tariff increase. An accurate comparison cannot be made, because the general level of prosperity and purchasing power changed considerably during that period. Neither can valid comparison be made with the recent war years, because trade conditions were abnormal, desired quantities of imports could not be obtained, prices were high, and the increased attention to sugar reduced other food production.

Cuba's present agricultural income both from sugar and from other products is more than double that of the years immediately preceding the war. This increase, however, is attributable chiefly to wartime prices and sugar prosperity rather than to the effect of agricultural policy and programs. No figures are available concerning the indebtedness of Cuban farmers, but a safe assumption is that it is much lower now than before the war, and that this also is due largely to recent prosperity.

## Conclusion

Several major trends are apparent in Cuba. Continually rising wages are increasing the cost

<sup>8</sup> See p. 136 of reference cited in footnote 1.

of production to such an extent that Cuba can no longer be classified as a country of low production costs. This will be a very important factor when downward adjustments again become necessary in the production of sugar. Cuba will then be faced with the problem of (a) reducing wages, (b) sharply reducing production to the quantity it can sell on the relatively high priced United States market, or (c) greatly improving its efficiency by reducing costs through mechanization and research. There is at present no real effort

toward research, and mill owners and cane growers fear labor's opposition to the introduction of labor-saving machinery. A general increase in mechanization of agriculture, however, is inevitable, especially in the use of tractors in place of slow oxen. Finally, the eventual downward adjustment in sugar production when the world market for Cuban sugar becomes less favorable than at present will bring with it a renewed emphasis on diversification in order to provide alternative income and employment.

# Chile's Pattern of Agricultural Production and Trade

by PAUL L. GUEST\*

In the August issue of *Foreign Agriculture* the author discussed the physical characteristics of Chile, land use and agricultural population, Government agencies dealing with agriculture, and the general farm practices of the country. In this issue he reviews briefly the principal crops grown, livestock production, and recent changes in the pattern of Chile's foreign trade in agricultural commodities.

## Principal Crops

### GRAINS

Grain farming is Chile's main agricultural enterprise. In terms of value of yearly output, area devoted to annual crops, research effort, Government and public interest, and other yardsticks, grain production, particularly of wheat, is of more importance than any other single farming activity. In prewar years, large quantities of barley, oats, and bran normally were exported, and since 1942 rice has become an important export item.

**Wheat.**—Wheat is the classic crop in Chile. The annual farm return for this cereal during the 5-year period 1939–43 averaged 939,017,900 pesos<sup>5</sup> or 71 percent more than the return for cattle—the second most important agricultural item in Chile (7).<sup>6</sup> The country endeavors to be self-sufficient in wheat, but in some years produc-

tion is reduced because of unfavorable weather, and imports must be effected in order to satisfy domestic requirements.

Primarily because of moisture relationships, wheat is grown as a winter crop in Chile with plantings being made after the first winter rains occur. A large part of the outturn in the north and south central zones is produced under irrigation. Harvesting begins the latter part of November in the northern zone and progresses southward, ending in the southern zone not later than March.

The annual wheat production for the 5-year period 1939–40 to 1943–44 averaged 31,400,000 bushels, of which 91 percent was common soft wheat and 9 percent durum, known in Chile as *candeal* (table 4). The average yield was 16.4 bushels per acre. Over one-half of the soft wheat was produced in the southern zone, whereas the north central and northern zones accounted for 95 percent of the durum (table 5 and fig. 5).

**Oats and Barley.**—Chile is a surplus area with reference to oats and barley, and in prewar years large quantities were exported. In the biennium 1937–38, for example, annual shipments of barley averaged 3,118,000 bushels and oats, 4,131,000 bushels, destined principally for Germany, Belgium, and the United Kingdom (3).

The main oat-producing regions of Chile correspond rather closely to the soft-wheat areas, whereas barley somewhat parallels those of durum wheat. During the 5 years 1939–40 to 1943–44, just two Provinces in the southern zone—Cautín

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<sup>5</sup> Fluctuations in the peso-dollar exchange, during the period, make it difficult to estimate the value of the return in dollars.

<sup>6</sup> Italic numbers in parentheses refer to Literature Cited, p. 136.



and Malleco—produced 62 percent of the total outturn of oats, and the three Provinces of Santiago, O'Higgins, and Valparaíso in the north central zone were responsible for 63 percent of the entire barley production. The average annual oat crop for the period amounted to 5,679,000 bushels, feed barley 1,778,000, and malting barley 1,575,000 bushels (5,847-848).

**Rice.**—Rice is a newcomer among Chile's principal crops. The area sown to rice increased from a mere 185 acres in 1933-34 to an estimated 127,000 acres in 1945-46, with most of the expansion having taken place in the past 4 years. Yields are high, the 5-year average (1940-41 to 1944-45) having been 75.5 bushels of rough rice per acre. The total outturn of rough rice, all lowland, in 1944-45 reached 7,862,000 bushels. The north central zone contributed about two-thirds of this and the south central zone one-third, with Talca and Linares together accounting for 55 percent of the total.<sup>7</sup>

As a result of this expansion of production, Chile has rapidly changed from a deficit area to a surplus-rice nation, and, consequently, under the stimulus of a strong wartime demand, exports have skyrocketed. Preliminary figures for 1945 show that rice shipments (all milled) were in the neighborhood of 46,300 short tons against only 4,300 in 1940-41, the first year that shipments were made.<sup>7</sup>

TABLE 4.—Acreage, yield per acre, and production of wheat in Chile, 1939-40 to 1943-44

| Crop year               | Acreage seeded |             |             | Average yield per acre |          |          | Production     |                |                |
|-------------------------|----------------|-------------|-------------|------------------------|----------|----------|----------------|----------------|----------------|
|                         | Soft           | Durum       | Total       | Soft                   | Durum    | Total    | Soft           | Durum          | Total          |
|                         | 1,000 acres    | 1,000 acres | 1,000 acres | Bush-els               | Bush-els | Bush-els | 1,000 bush-els | 1,000 bush-els | 1,000 bush-els |
| 1939-40.....            | 1,939          | 107         | 2,046       | 15.2                   | 19.4     | 15.4     | 29,510         | 2,078          | 31,588         |
| 1940-41.....            | 1,811          | 119         | 1,930       | 14.6                   | 19.6     | 14.9     | 26,454         | 2,332          | 28,786         |
| 1941-42.....            | 1,659          | 145         | 1,804       | 15.8                   | 17.5     | 15.9     | 26,217         | 2,536          | 28,753         |
| 1942-43.....            | 1,684          | 171         | 1,855       | 16.8                   | 18.2     | 17.0     | 28,355         | 3,110          | 31,465         |
| 1943-44.....            | 1,812          | 158         | 1,970       | 18.1                   | 23.7     | 18.5     | 32,763         | 3,746          | 36,509         |
| Average.....            | 1,781          | 140         | 1,921       | 16.1                   | 19.8     | 16.4     | 28,660         | 2,760          | 31,420         |
| Percentage average..... | 92.7           | 7.3         | 100.0       |                        |          |          | 91.2           | 8.8            | 100.0          |

Source: ESTADÍSTICA CHILENA (5, pp. 845-846).

## VEGETABLES

At least during the past two decades, the annual farm income from vegetable crops has been second

in value only to grains among Chile's crops. For several years prior to the war, this group of products occupied first place on the list of the nation's agricultural exports in terms of group value. The pulses—beans, peas, lentils, and chickpeas—and potatoes have accounted for most of the vegetable income, and vegetable exports have been principally of pulses.

TABLE 5.—Distribution of wheat production in Chile, by zones, 1939-40 to 1943-44

| Zone               | Production        |             |         |
|--------------------|-------------------|-------------|---------|
|                    | Common soft wheat | Durum wheat | Total   |
|                    | Percent           | Percent     | Percent |
| Northern.....      | 1.3               | 12.0        | 2.3     |
| North central..... | 22.9              | 82.6        | 28.2    |
| South central..... | 23.0              | 3.7         | 21.3    |
| Southern.....      | 52.8              | 1.7         | 48.2    |
| Austral.....       |                   |             |         |
| Total.....         | 100.0             | 100.0       | 100.0   |

Source: ESTADÍSTICA CHILENA (5, p. 845).

**Pulses.**—Dry edible beans and dry field peas have been grown on a large scale in Chile, and chickpeas to a lesser extent, for a number of decades. It has only been since the 1920's, however,

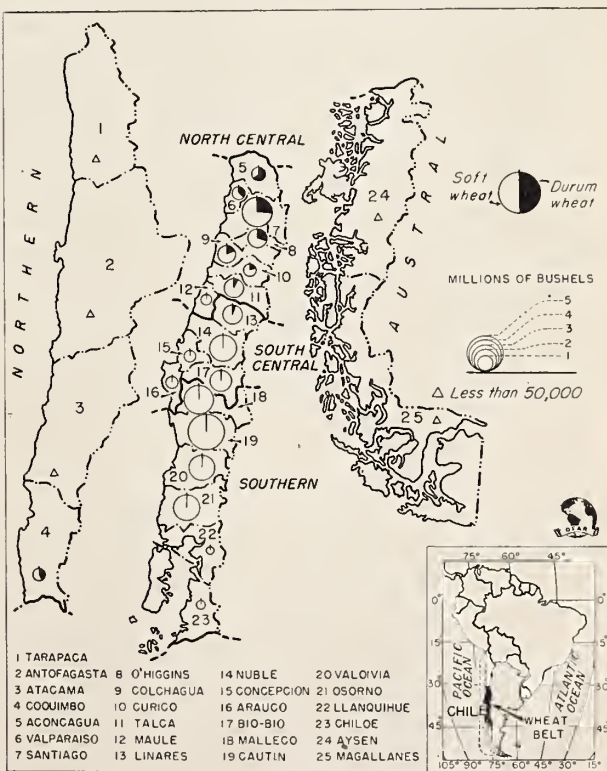


FIGURE 5.—Distribution of average annual wheat production in Chile, by Provinces, 1938-40 to 1943-44.

<sup>7</sup> WARNER, MELVIN C. CHILEAN RICE SITUATION . . . [Based on official statistics] U. S. Cons. Rpt. No. 48. 9 pp., illus. Santiago. January 31, 1946. [Hectographed.]



that lentils have become an item of major importance. The trend in the acreage planted to pulses since the 1911-12 season is reflected in table 6. Shipments of pulses normally were destined largely for Europe, and hence with the advent of the war these exports were cut off to a great extent. This, in turn, brought about a sharp drop in plantings and production.

TABLE 6.—Area planted to pulses in Chile, specified years

| Crop year                  | Beans          | Peas           | Lentils        | Chick-peas     | Total          |
|----------------------------|----------------|----------------|----------------|----------------|----------------|
|                            | 1,000<br>acres | 1,000<br>acres | 1,000<br>acres | 1,000<br>acres | 1,000<br>acres |
| 1911-12                    | 94             | 22             | 1              | 5              | 122            |
| 1920-21                    | 108            | 32             | 7              | 6              | 153            |
| 1930-31                    | 164            | 48             | 33             | 16             | 261            |
| 1936-37                    | 236            | 77             | 166            | 28             | 507            |
| 1943-44                    | 197            | 57             | 32             | 21             | 307            |
| Average 1939-40 to 1943-44 | 219            | 66             | 55             | 22             | 362            |

Source: Official statistics (5, 7).

The average annual outturn of pulses for the 5-year period 1939-40 to 1943-44 totaled 260,000,000 pounds, with the production of specific items, in pounds, as follows: Dry edible beans 171,000,000; dry field peas 46,000,000; lentils 33,000,000; and chickpeas 10,000,000 (5, pp. 845-860). About two-thirds of the dry-bean output during the period took place in the north central zone, with most of the balance being located in the south central zone. Peas, of course, are better adapted to a slightly cooler climate, and therefore the principal growing region is in the southern part of the country. A block of four Provinces—Cautín, Malleco, Arauco, and Bío-Bío—accounted for almost three-fourths of the total production for the 5-year period 1939-40 to 1943-44. The lentil crop is rather well distributed over both the north and south central zones, although just two Provinces, Malleco (southern zone) and neighboring Bío-Bío, produced over one-third of the country's total outturn during the period just mentioned. In the same 5 years, Colchagua Province alone accounted for 30 percent of the chickpea output, with the balance of the production being distributed principally among other north central and also south central Provinces.

Pulses comprised one of Chile's leading groups of agricultural exports in the years immediately prior to the war. Average annual shipments for the biennium 1937-38 reached 107,300 short tons, 45 percent of the tonnage being composed of lentils and 38 percent of dry edible beans. A large share of the movement went to Germany and France,

and consequently the war halted this flow. As a result, average annual exports of pulses during the 2 years 1942-43 amounted to only 48,000 short tons, or less than one-half the 1937-38 volume.<sup>8</sup>

**Potatoes.**—The potato is one of Chile's main food items, although in contrast to the pulses it has been of only minor importance as an export commodity. The domestic market prefers a red-skinned, yellow-fleshed tuber instead of white-skinned types so common in the United States. The Ministry of Agriculture is carrying on a potato-improvement program, with the selection work being centered at the Centinela Agricultural Experiment Station located at Puerto Octay.

Potato plantings have gradually increased from 66,000 acres in the 1911-12 season to an annual average of 129,000 acres for the 5 years 1939-40 to 1943-44 (5, pp. 845-860, 7). The latter area produced an average yearly crop of 16,845,000 bushels, of which 52 percent was raised in the southern zone and the balance throughout the rest of the country. One Province, Llanquihue, accounted for almost one-fifth of the entire output during the 5-year period.

**Other Vegetables.**—All the vegetables commonly produced in temperate climates are grown in Chile. A few of these (in addition to pulses and potatoes)—principally garlic, onions, and honeydew melons—normally are exported in appreciable quantities, with the United States being the chief outlet for honeydew melons.

## WINE GRAPES

The production of wine is one of Chile's oldest industries. In terms of capital invested, number of people employed, and as a source of internal revenue, it is also one of the most important. The best Chilean wines are generally considered to compare favorably with high-quality wines produced elsewhere.

The Chilean grape acreage, which has shown comparatively little change for a number of years, for 1942-43 was estimated at 246,000 acres, 41.6 percent of which was under irrigation. Wine grapes accounted for roughly 95 percent of the area, since plantings of table varieties are very limited. The average Chilean vineyard is small, occupying only about 7.5 acres, but there are also a number of large holdings. Production of wine

<sup>8</sup> GUEST, PAUL L. AN ANALYSIS OF CHILE'S FOREIGN TRADE IN AGRICULTURE . . . [Based on official statistics] U. S. Cons. Rpt. No. 343. 96 pp., illus. Santiago. September 24, 1945. [Hectographed.]

and grape cider (*chicha*) for the 5 years 1938-39 to 1942-43 averaged 276,342,727 liters<sup>9</sup> annually (5, p. 860), but owing to favorable weather, the output in 1943-44 was 38 percent above this figure—an all-time high. The north central zone usually produces almost two-thirds and the south central zone about one-third of the entire wine output, with 1 percent being contributed by the northern zone and a trace by the southern. Generally at least one-half of the total production is accounted for by the three Provinces of Talca, Linares, and Santiago.

Most of Chile's wine is utilized domestically (the annual per capita consumption is roughly 20 gallons), and consequently during the past 20 years only about 1 to 4 percent of the annual output has been exported. Immediate prewar shipments averaged some 10 million liters per year, although in 1937 the volume reached 13,340,200 liters (3). About four-fifths moved to Germany and Belgium, and when the war closed those markets exports decreased rapidly, with shipments in 1942 amounting to only slightly more than one-tenth the 1937 volume. Sales to Western Hemisphere nations, especially the United States, have been increasing since 1942, and this new movement has offset to some extent the loss of European outlets.

## INDUSTRIAL CROPS

The area devoted to industrial crops in Chile—particularly fibers, oilseeds, and tobacco—usually is less than 4 percent of the total area in annual crops. The value of the output is high, however, and is important in the economy of the country.

**Fibers.**—Both hemp (*Cannabis sativa*) and flax are grown for fiber. The production of the former is an old industry, dating back for years, whereas the latter is comparatively recent. The 10-year (1934-35 to 1943-44) average annual acreage of hemp was 21,000 acres, with an average yearly fiber outturn of 19,000,000 pounds. In 1942-43, however, as a result of wartime stimulus, sowings and production were almost two and one-half times these amounts (9). Practically the entire output occurs in the north central zone, especially in Aconcagua and Valparaíso Provinces. A large proportion of the crop is usually exported.

During the past 10 years, the growing of fiber flax has become of some importance in Chile. Plantings increased from 596 acres in 1935-36 to 13,000 acres in 1943-44, with a total fiber yield of

2,800,000 pounds in the latter year (9). Over two-thirds of the entire production during the past several seasons has been in the southern zone.

**Oilseeds.**—Chile is a deficit producer of oilseeds and vegetable oils. In the immediate prewar years, domestic requirements were met principally by annual imports of cottonseed amounting to a total of 46,000 short tons (rounded) from Peru and Egypt. During the war, cottonseed was displaced by sunflower seed from Argentina, but imports declined because of increased home production.

Plantings of sunflowers rose from 3,000 acres in 1939-40 to 51,000 acres in 1944-45, with an output of 61,839,000 pounds of seed in the latter year (11). Four-fifths or more of the production comes from the north central zone. Although the total outturn has increased greatly, imports of oilseeds still supply more than 50 percent of the country's consumption of edible vegetable oil.

**Tobacco.**—Chile is almost completely self-sufficient in tobacco. The 5-year average annual production from 1939-40 to 1943-44 amounted to 15,500,000 pounds obtained from average yearly plantings of 9,000 acres (5, p. 854). Practically the entire output came from the north central zone, principally Aconcagua Province. Annual imports of leaf tobacco, mostly from Cuba, averaged only 176 short tons during 1940-44.

## FRUIT

A wide variety of Temperate Zone and subtropical fruit is grown in Chile, practically all under irrigation except in the case of wine grapes, olives, and, to some extent, apples. Most of the dried-fruit output comes from valleys in the north central and northern zones; commercial apple and pear production is distributed over the north central, south central, and southern zones.

The apple is Chile's most important deciduous fruit in terms of volume and value of production, but large quantities of peaches, pears, plums, apricots, etc., are also raised. Official statistics on the fruit output are lacking, but certain trade estimates have placed the average annual commercial apple crop in recent years at the equivalent of about 600,000 boxes (42 pounds net), and export-type table grapes at some 1,543 short tons. Exports of fresh fruit—destined principally for Germany and other European nations—for the 5-year prewar period 1935-39 averaged 13,846 short tons, over four-fifths of which were apples, compared with

<sup>9</sup> 1 liter equals 1,057 liquid quarts—roughly 1 quart.



only 4,578 short tons for the succeeding five war years.<sup>10</sup> This sharp drop was brought about as a result of the loss of European markets because of the war. Dried-fruit production during the past decade probably has been in the neighborhood of 3,900 to 4,400 short tons annually, composed mainly of raisins and prunes. A large percentage of the output is sold abroad.

Subtropical fruits grown commercially include oranges, lemons, olives, avocados, cherimoyas, and figs. Plantings of most of these have been increasing for several years in order to supply the domestic market. Because of the large new acreage, however, the anticipated lemon crop a few years hence is now expected to exceed the internal demand for lemons. Present plantings of citrus are estimated to consist of roughly 8,600 acres of lemons and 6,200 of oranges (10).

## HAY AND PASTURE CROPS

Pastures are extremely important in Chile's agricultural economy as illustrated by the fact that hay and pasture crops occupy about two-thirds of all arable land and one-half of all irrigated land. The area in tame pasture and hay crops in the agricultural year 1942-43 was 3,213,000 acres and in native pasture 7,160,000 acres (9). The composition of the former was as follows: Orchard grass (*Dactylis glomerata*) 36.9 percent; clover 31.0 percent; orchard- and velvet-grass mixture 15.6 percent; alfalfa 8.2 percent; velvet grass (*Notholcus lanatus* or *Holcus lanatus*) 6.8 percent; and others 1.5 percent.

The Ministry of Agriculture is carrying on an extensive pasture-improvement program and now has test plantings of a large number of the more common pasture crops found in temperate regions of the world. Development of improved pastures is essential to further expansion of the cattle industry, and the Ministry has already made considerable progress in pasture improvement.

## FOREST PRODUCTS

About 22 percent, or 39,500,000 acres, of Chile's surface is covered with forests and woodlands. Hardwoods, in general of good quality, account for 93 percent of the timber, and estimates indicate that the forests contain, roughly, 175 billion board-feet of lumber in trees more than 11 inches in

diameter. The most common forest trees in the southern zone—the principal timber region—include roble (*Nothofagus obliqua*), raulí (*Nothofagus procera*), laurel (*Laurelia aromatica*), Coigue (*Nothofagus Dombeyi*), olivillo (*Aextoxicon punctatum*), and ulmo (*Eucryphia cordifolia*). Some 60 percent of the saw timber is located in the four southern Provinces of Cautín, Valdivia, Osorno, and Llanquihue (2).

Chile has from 350,000 to 400,000 acres of planted forests, composed mainly of softwoods. About 60 percent of the area is in Monterey (or *insignis*) pine (*Pinus radiata*), 30 percent blue-gum eucalyptus (*Eucalyptus globulus*), and 4 percent Lombardy poplar (*Populus nigra italica*). About half the total planted area is in Concepción, Bío-Bío, Cautín, and Valdivia Provinces (2, 9).

Chile's forest products consist principally of lumber and fuel wood, although mine timbers, ties, posts, plywood, and soapbark also are important. The volume of timber cut during the past few years is estimated to have averaged about 196 million cubic feet annually (2). A great deal of the lumber is supplied by the hardwoods, although eucalyptus is the source of much of the fuel wood and mine timbers. Monterey pine also furnishes considerable lumber, as well as box shook and pulpwood. Practically every year during the long dry summer, forest fires destroy extensive stands of timber, with estimates placing the loss at as much as four times the volume cut for use.

Forest products occupied seventh place among Chile's agricultural exports in terms of value during both the prewar biennium 1937-38 and the two war years 1942-43.<sup>11</sup> The annual value, f. o. b. frontier, of this group of exports for the 4 years averaged \$1,108,553, over four-fifths of which was accounted for by timber and planks and 11 percent by soapbark. Argentina, Peru, and Germany were the principal purchasers.

## Animals and Animal Products

### CATTLE AND BEEF

Second only to wheat farming in value of annual production, cattle ranching has long been a principal enterprise of Chilean agriculturists. It is generally recognized that the industry today is confronted with two major problems that must be solved if further expansion is to take place: (a)

<sup>10</sup> GUEST, PAUL L., AND HARRIS, EUGENE V. CHILEAN DECIDUOUS FRUIT SITUATION. [Official foreign trade data.] U. S. Con. Rept. No. 485. 18 pp., illus. Santiago, December 17, 1945. [Hectographed.]

<sup>11</sup> See reference cited in footnote 8.



Control of diseases and (b) pasture improvement. Considerable progress has already been made in both of these fields by the Ministry of Agriculture and other agricultural organizations.

The total number of cattle has been registering a downward trend in Chile since 1938, and, as shown in the following tabulation, it was only a little higher in 1944 than in 1918 (7) :

| Year:     | Thousands | Year:     | Thousands |
|-----------|-----------|-----------|-----------|
| 1918----- | 2, 225    | 1940----- | 2, 421    |
| 1925----- | 1, 918    | 1942----- | 2, 346    |
| 1936----- | 2, 573    | 1944----- | 2, 311    |
| 1938----- | 2, 634    |           |           |

The southern zone is the main cattle region and in 1944 contained 45 percent of the total cattle population, compared with 27 percent in the north central and 19 percent in the south central zones (7). The distribution of cattle numbers in 1936 and 1944, by zones, was as follows:

| Zone:              | 1936    | 1944    |
|--------------------|---------|---------|
|                    | Percent | Percent |
| Northern-----      | 6. 4    | 6. 3    |
| North central----- | 31. 0   | 27. 4   |
| South central----- | 18. 9   | 19. 1   |
| Southern-----      | 42. 1   | 45. 4   |
| Austral-----       | 1. 6    | 1. 8    |
| Total-----         | 100. 0  | 100. 0  |

Concerning the composition of the cattle population, as shown below, about 30 percent of the total were cows and 20 percent calves in 1944, the share of both being slightly greater than in 1936 (7) :

| Category:    | 1936    | 1944    |
|--------------|---------|---------|
|              | Percent | Percent |
| Cows-----    | 29. 1   | 29. 8   |
| Calves-----  | 17. 9   | 19. 7   |
| Oxen-----    | 19. 4   | 18. 0   |
| Steers-----  | 18. 4   | 17. 3   |
| Heifers----- | 12. 9   | 13. 1   |
| Bulls-----   | 2. 3    | 2. 1    |
| Total-----   | 100. 0  | 100. 0  |

With reference to breeds, Holsteins and Short-horns are more numerous than others.

Annual cattle slaughterings are increasing. Exclusive of farm butchering, they averaged 512,386 head, with a total dressed weight of 267,681,000 pounds for the 3-year period 1942-44, compared with 421,947 head and 230,064,000 pounds for the triennium 1936-38 (6, 7). The annual per capita consumption of beef in Chile averaged 53.4 pounds during the 5 years 1940-44 (6, p. 423), or slightly more than for the preceding 5-year period.

Domestic offerings of slaughter cattle have been falling behind the demand for beef during the past decade, and, as a result, importations from Argentina have been on the upswing. Total annual cattle arrivals averaged only 41,336 head for the biennium 1937-38, but this figure had risen to 122,324 by 1942-43 (3) and in 1945 reached 236,286 head with a c. i. f. value of 64,675,193 pesos of 6d. gold (\$13,300,000).<sup>12</sup> This was the second most important commodity purchased abroad by Chile in 1945 valuewise; it was surpassed only by sugar.

## SHEEP AND WOOL

Sheep farming is Chile's second most important livestock enterprise. Wool has for many years been the country's leading agricultural export in terms of value. Also, large quantities of frozen lamb and mutton are exported to the United Kingdom from Magallanes, the nation's principal sheep-ranching area. Ranges there are vast, many single ranches covering thousands of acres.

There were 5,749,069 head of sheep in Chile in 1936, the most recent year for which data are available, compared with 4,999,166 in 1922 and 4,602,317 in 1914, but reports state that the present number possibly is as much as 10 percent greater than in 1936. Almost half the total that year was in the austral zone as shown below (4) :

| Zone:              | 1936    |
|--------------------|---------|
|                    | Percent |
| Northern-----      | 4. 2    |
| North central----- | 16. 9   |
| South central----- | 11. 1   |
| Southern-----      | 19. 2   |
| Austral-----       | 48. 6   |
| Total-----         | 100. 0  |

The same year, 63 percent of the total comprised ewes, 25 percent lambs under 1 year of age, 9 percent wethers, and 3 percent rams. Corriedale and Romney are the most numerous breeds in the austral zone; Merino, Corriedale, Suffolk, and Hampshire are popular in the other zones.

The annual number of sheep slaughtered in abattoirs for domestic consumption of lamb and mutton, exclusive of slaughterings by Magallanes packing houses, averaged 1,384,140 head, with a dressed weight of 56,231,000 pounds for the 3 years 1942-44. Killings by Magallanes *frigoríficos* (packing houses) averaged 999,948 head per year for the period 1941-42 to 1943-44, inclusive. The

<sup>12</sup> One peso of 6d. gold equals \$0.20597; 4.855 pesos of 6d. gold equal \$1.00.

annual domestic per capita consumption of lamb and mutton was at the average rate of 13.5 pounds from 1940 to 1944, inclusive (6, 7).

On the basis of value, wool is Chile's third most important export commodity, being exceeded by copper and nitrate. Annual shipments for the 5 years 1940-44 averaged 21,200,000 pounds, valued, f. o. b. frontier, at 25,646,200 pesos of 6d. gold (\$5,300,000), (5, p. 825). Prior to the war, exports were destined principally for the United Kingdom, but the movement shifted to the United States during the war years.

An average of approximately 10,500 short tons of chilled and frozen lamb and mutton was exported annually from the Magallanes area, almost entirely to the United Kingdom, during the 5 years 1940-44. This was largely based upon Argentine sheep, since, during the same 5-year period, Chile imported an average of 758,915 head annually, practically all of which were from Argentina, and 71 percent of which entered Magallanes (3, 5).

### HOGS

The raising of hogs has never reached such proportions in Chile that it could be classed as a definite industry. Numbers are low, owing principally to the scarcity and high price of corn and other feedstuffs. The total was placed at 571,495 head in 1936 (4), and the increase since that time probably has not exceeded 10 percent. Almost one-half were located in the southern zone, the principal cattle area, the distribution by zones being: Northern 3 percent, north central 26 percent, south central 22 percent, southern 48 percent, and austral 1 percent.

Slaughterings in abattoirs averaged 281,867 head annually, with a dressed weight of 45,342,000 pounds, during 1940-44. Per capita consumption of pork for the same period, including farm slaughterings, averaged 10.4 pounds (6, p. 423).

### GOATS

According to the agricultural census of 1936, there were 810,206 goats in Chile, but reliable sources estimate that the total is at least double that number at present. The northern zone, with its sparse vegetation and arid characteristics, is the principal goat area, having over one-half the total number. The distribution by zones in 1936 was: Northern 53 percent, north central 18 percent, south central 10 percent, southern 18.5 percent, and austral 0.5 percent.

Abattoir slaughterings from 1940 to 1944, in-

clusive, averaged 76,756 head annually, and farm slaughterings possibly were three-fourths this number. Yearly consumption of goat meat averaged 0.77 pound per person (6, p. 423).

### HORSES

A recent estimate placed the number of horses in Chile at some 600,000 (9). Except for the breeding of race and army horses, at present comparatively little interest is shown in raising horses. Years ago, however, breeding was of considerable importance, and the Chilean horse became known to breeders throughout the world.

### DAIRY PRODUCTS

Of the 714,350 cows in Chile in 1943, estimates indicate that 321,180, or 45 percent, were dairy cows (5, p. 473). The southern zone is the main dairy region, and it contained almost half the dairy cows that year. Considerable dairy production also is found in the Santiago-Valparaíso area. The distribution of the total number of dairy cows by zones in 1943 was: Northern 7 percent, north central 34 percent, south central 13 percent, southern 45 percent, and austral 1 percent.

The general opinion is that the production of milk in Chile is not great enough to satisfy the minimum nutritional requirements of the people for this commodity. The average daily production per dairy cow in 1943 amounted to 3.61 liters, which made a total annual production of 422,419,610 liters of fluid milk. This was equivalent to 80.7 liters per person that year. The average annual outturn of butter during the 3 years 1941-43 amounted to 1,612,000 pounds, with a definite downward trend being noted during the period (8).

Prior to the war, Chile was self-sufficient in dairy products and even exported small quantities of canned milk (about 716 short tons in 1937) but became an importer during the war. Annual arrivals of butter, the principal product, averaged 3,650,000 pounds—all from Argentina—for the 3 years 1942-44 with a strong upward trend in volume (3, 5).

### HIDES AND SKINS

Chile has long been an exporter of sheep and lamb skins, principally from the Magallanes area to Germany, the United Kingdom, and the United States. Annual shipments for the biennium 1937-38 averaged 9,004,000 pounds, and for 1942-43 the figure was 7,335,000 pounds (3).



## Foreign Trade in Agricultural Commodities

Chile's pattern of foreign trade in agricultural commodities<sup>13</sup> for the immediate prewar years was altered considerably during World War II.

The following discussion deals primarily with the trade during the peacetime biennium 1937-38 and the two war years 1942-43, 1943 being the latest year for which complete data are available. The export monetary figures shown refer to the value f. o. b. frontier; those for imports are c. i. f.

In 1937 and 1938, the average annual value of agricultural exports (\$32,000,000) exceeded agricultural imports (\$17,000,000) by \$15,000,000. During the war biennium 1942-43, however, the situation was quite the reverse. Imports of agricultural items rose to an average annual figure of \$35,000,000, and shipments decreased to \$26,000,000. Incomplete data indicate that imports also exceeded exports in 1944 and 1945.

Agricultural products during the peacetime period mentioned accounted for 19 percent of all exports, valuewise, but in the war biennium 1942-43, the figure dropped to 15 percent. Agricultural imports, on the other hand, moved in the opposite direction. In the former period, this group of items represented 18 percent of the total value of all imports and in the latter 27 percent.

### AGRICULTURAL EXPORTS

On the basis of value, 57 percent (\$18,000,000) of Chile's agricultural exports in 1937-38 consisted of vegetable products and 43 percent (\$14,000,000) animal products. The percentages and values for 1942-43 were: Vegetable products, 62 percent and \$16,000,000; animal products, 38 percent and \$10,000,000. In the former period, three commodity groups—vegetables, animal textiles and bristles, and grains and products—comprised almost two-thirds of the total value.

The principal animal products exported consisted of sheep's wool, hides and skins (mainly

sheep and lamb skins), meat and products, and bee products. The first item, sheep's wool, accounted for about one-fifth of the entire value of agricultural exports for the 4 years under review and was the most important agricultural commodity exported, valuewise. Concerning vegetable products, vegetables (principally pulses) and grains and grain products together made up 39 percent of all agricultural exports in the prewar period 1937-38. The value of pulse exports declined by 50 percent in 1942-43.

Composed mainly of oats and barley and their products before the war, grain exports by 1943 had changed their complexion appreciably, with oats largely dropping out and with rice becoming the major commodity. In fact, in 1945 rice was second only to wool as Chile's most important agricultural export item, valuewise. The value of fruit shipments, which accounted for only 4 or 5 percent of the total of all agricultural exports, was down one-third in 1942-43 as compared with the prewar figure in 1937-38. A tremendous increase in shipments of hemp fiber in 1942-43 raised vegetable fibers to second place on the basis of value.

The average annual weight of Chile's agricultural exports, with the exception of wine and a few other items for which weight figures are not available, for the prewar period 1937-38 totaled 440,215 short tons, or the equivalent of about 1.5 shiploads of 5,500 short tons each per week. This dropped to 175,015 short tons during 1942-43.

In terms of value, 75 percent of Chile's agricultural exports were destined for Europe during the two prewar years 1937-38 and 12 percent each for South and North America. Germany was the greatest single purchaser, accounting for 46 percent of the total, followed by the United Kingdom with 20 percent and the United States with but 7 percent. In the war biennium 1942-43, North America purchased 48 percent of the total and South America 34 percent; Europe dropped to 18 percent. The United States became the leading purchaser during this period taking 36 percent—followed by the United Kingdom, 15 percent: Argentina, 13 percent; and Cuba, 9 percent.

<sup>13</sup> See reference cited in footnote 8.



## AGRICULTURAL IMPORTS

Valuewise, about three-fourths of Chile's agricultural imports were made up of vegetable products during each of the two periods being discussed and one-fourth, animal products. Three items or groups—sugar, beverage products, and livestock—accounted for one-half of all such imports in 1937–38 and almost two-thirds in 1942–43. Chile purchased \$10,600,000 worth of sugar per year in the latter period, compared with only \$3,700,000 in the former, composed largely of raw cane sugar from Peru. This was the most important agricultural import, representing 30 percent of all such items in 1942–43. The volume of sugar arrivals in this latter period, however, was only 18 percent above that of 1937–38. Beverage products consisted mainly of tea, coffee, and maté. Other important vegetable products were: Oilseeds (principally cottonseed prior to the war and sunflower seed from Argentina in 1942–43), grains and products (wheat, wheat flour, and also rice in 1937–38), and vegetable fibers (principally raw cotton).

The value of livestock arrivals in 1942–43 was almost three times greater than in the prewar period 1937–38. This upswing resulted in large measure from a sharp increase in cattle imports, the value of which in 1943 was more than 12 times the 1937 figure. Argentina was the principal source of supply in both 2-year periods. An average of 165,454 head of cattle per annum was brought in during 1942–43, mainly for slaughtering, compared with only 29,874 in 1937–38. Chile's imports of sheep increased from 658,155 head per year in the prewar biennium 1937–38 to 920,764 head in 1942–43. About three-fourths of these entered the Magallanes area from Argentina to be exported as lamb and mutton, mainly to the United Kingdom.

Sugar and cattle were Chile's two most important import commodities, valuewise, in 1945 and together accounted for almost one-fifth of the total value of all imports, according to preliminary data for that year. Arrivals of sugar reached \$15,500,000 and of cattle, \$13,300,000—both all-time highs. The former item was supplied largely by Peru, and almost 100 percent of the 236,286 head of cattle were obtained from Argentina.

The average yearly weight of Chile's agricultural imports, except livestock and a few other items for which weight figures are not available,

totalled 296,406 short tons in the prewar period 1937–38 and 361,039 short tons in 1942–43—an increase of 22 percent in the latter period.

During 1937–38, about 58 percent of Chile's agricultural imports originated in South America, 15 percent in North America, and 11 percent in Europe, on the basis of value. In the war period 1942–43, South America furnished 89 percent, North America 6 percent, and Europe only 3 percent. Peru and Argentina occupied first and second places, respectively, during both periods and in 1942–43 were the sources of more than three-fourths of all such imports. The United States supplied but 11 percent in 1937–38 and only 4 percent in 1942–43.

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